LABCAIRE
For Tomorrow's Environment

F100

Ductless Fume Enclosure

Operators Manual

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CE Marking certifies that this equipment conforms to the following EEC directives: -
Low Voltage Equipment – 72/23/EEC & 93/68 EEC
Electromagnetic Compatibility – 89/336/EEC

ISO 9001 : FM40018
ISO 13485 : MD79359

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SECTION 1

INTRODUCTION

Thank you for purchasing a Labcaire Ductless Fume Enclosure. Correctly installed and maintained this unit will give many years of service.

The unit can be fitted with a wide range of filters for many different applications. The correct filter must be used for each range of applications and Labcaire will be able to offer assistance on the best filter for safety and long filter life.

SECTION 2

GENERAL OPERATING INSTRUCTIONS

A The fume hood should only be operated with the correct filter installed for the application. If in doubt, call LABCAIRE directly.

B The face velocity at the working aperture is at a maximum with the front lower flap in the closed position. The unit should be used in the closed position whenever practical.

C A Bunsen burner or other heat source should not be used in the F100 model.

D LABCAIRE fume hoods are designed to handle fumes and vapours given off during normal laboratory procedures. They are NOT recommended when large quantities of solvents are evaporated, acid digestion procedures or when working with unknown chemicals.

E Always keep a spare set of filters available.

F High concentrations of fumes entering the filter block may temporarily reduce the filtration efficiency. For this reason any major spillage within the fume hood should be cleaned up immediately, preferably using spillage absorption granules (available from laboratory supply houses) rather than tissue paper which may aggravate the evaporation of toxic fumes from the spillage area.

G Following a major spill the main filters must be changed as the heat of wetting may reduce filter efficiency. After stabilization, the old filters can normally be re-used, providing saturation has not been reached.

H The pre-filter requires changing due to blockage from particles in the atmosphere. This should be changed when the alarm light starts to flicker.

SECTION 3

GENERAL INSTALLATION RECOMMENDATIONS

To avoid air currents in the room affecting the performance of the fume hood, we recommend the following:

1 The distance from the working aperture to any circulation space should be at least **1m**.

2 The distance from the working aperture to a bench top opposite it, and used by the same operator, should be at least **1.5m**.

3 There should be no opposite wall (or other obstruction likely to affect the airflow) within **1.5m** of the working aperture.

4 No fume hood should be installed in a position where it is likely to be affected by any other item of equipment.

5 Any room air supply should not be within **2m** of the working aperture.

6 No doorway or opening window should be within **1.5m** of the working aperture.

7 The distance from the exhaust to the ceiling should be at least **200mm**.

SECTION 4

FILTER INSTALLATIONS

Pre Filter

The unit will be despatched with pre-filters already installed.

To change the pre-filters

The pre-filters are supported by a grill and central support plate accessible from the inside of the base assembly.

Two screws will enable the plate to be moved forwards and then to one side to release the support grill. The pre-filter on one side can now be changed. The plate can then be moved to the far side to change the second pre-filter.

The plate is finally moved back to the centre and along to locate centrally and then the screws tightened.

Main Filters

Two main filters will be supplied and the filter identity should be checked to make sure the correct filter has been selected for the desired use of the cabinet.

The filter access panel on the front can be opened using the 180° TURN TO LOCK fasteners. The filter clamp frames can now be removed from inside the head unit.

The first filter is inserted onto the frame and moved to the side to locate.

The second filter is then inserted and moved to the other side to leave a gap in the centre.

The two clamp bars can now be replaced with the central spacer locating the filters in place.

The filters should now be clamped using the thumbscrews.

LOW AIRFLOW ALARM

A pressure switch is fitted between the fan and filter to indicate when the pre-filter requires changing. As the pre-filter becomes blocked, the vacuum increases until the switch is operated and the red warning light on the control panel starts to flicker or remains permanently on. If replacing the pre-filter does not remove the alarm condition then the switch requires re-calibration.

CALIBRATION

NOTE: Removal of the top cover will expose live terminals. This must only be carried out by a competent electrician.

1 Fit new pre-filters into the cabinet.

2 Switch on and allow a few minutes for airflow to stabilise.

3 Remove the top cover on the head unit. Turn screw fully anti-clockwise on the plastic pressure switch.

4 PLACE AN ACCURATE AIRFLOW METER in the area of the working aperture and measure airflow.

5 Impede airflow into the filters by using plastic sheeting over the pre-filters to simulate blockage until the airflow reduces to just below 0.5m/sec.

6 Screw switch, adjusting screw clockwise until warning light flickers.

7 SWITCH OFF. Replace the electrical cover panel and remove the plastic sheeting from the cabinet.

FAN

The fan requires no normal maintenance. A thermal cut out is fitted into the wiring of the fan to prevent overheating. This will reset on cooling but the cause of overheating should be investigated.

SECTION 5

MONITORING PROCEDURES

The purpose of monitoring is to detect when the pre-filters or main filters cease to operate effectively. If the pre-filters are blocked, the airflow will be reduced at the fume hood aperture. If the main filters are saturated they will cease to remove the fumes effectively.

The airflow through the aperture should be checked manually once per month using the procedure below. The low airflow does give an indication when the pre-filter requires replacement but further checks are necessary under COSHH regulations and an annual certificate for performance should be issued for the cabinet. The main filter must be suitable for the intended use and LABCAIRE should be consulted if in doubt.

The main carbon filter requires changing from time to time and should be checked at least annually as below.

If an odour is noticed, it is sensible to check the fume hood. However, it must be remembered that the sense of smell is very sensitive for some chemicals (e.g. ammonia or hydrogen sulphide) and a slight smell does not mean that the exhaust levels of chemical have approached the maximum acceptable concentration.

AIRFLOW MEASUREMENTS

An anemometer should be used to check the airflow (face velocity) at the working aperture, with the lower door flap down. Any suitable anemometer may be used, including hot wire, propeller or vane anemometer. A low-cost vane anemometer is available from LABCAIRE SYSTEMS for this purpose. A minimum of three readings should be taken across the working aperture. Note the result in a record book kept for this purpose. We advise changing the pre-filter if the average airflow drops below 0.5m/sec (100lfm).

An average of six measurements equally spaced should be used to compute the average.

The pre-filters will normally need to be changed more frequently than the main filters. A blocked HEPA filter (where fitted) is also indicated by reduced airflow, this is not restored after a pre-filter change.

MANUAL FILTER SATURATION DETECTION

1 Select a suitable test chemical and matching Gastec or Draeger sampling tubes. Examples include alcohols, toluene, trichlorethylene, or any suitable chemical in routine use in the fume hood, provided it is well absorbed and is not dangerously toxic.

2 Place 6ml of chemical in a beaker on a hotplate. Adjust the hotplate to boil off the chemical in about two minutes. This gives a concentration of about 100-200 ppm to challenge the filter.

3 For testing ACI filters (acid absorbing), or multi-filters with acid absorbing layers, use sulphur dioxide gas (S02) at 2 bubbles per second through water.

4 Using the gas sampling tubes, sample the outlet airstream from the unit, following the instruction given with the tube.

5 The reading should be below the threshold limit values. Enter the result in a record book kept for this purpose.

6 If a significant level of chemical is noted in the exhaust air, the main filter should be changed.

7 Contact LABCAIRE regarding any monitoring questions.

SECTION 6

LOG SHEET

Labcaire Ductless Fume Hoods

Model:

Main Filter Type:
Installation Date:
Chemicals to be used in the hood:

PRE FILTER CHECK

Date:	Airflow:	Filter Changed:

MAIN FILTER CHECK

Date:	Test Chemical:	PPM Level:	Filter Changed:

Note:

1 Log sheet should be maintained for safe and proper operation.
2 Log sheet should be accessible to users of unit.
3 Any questions regarding Log sheet, maintenance of unit, chemicals, or correct filter should be directed to LABCAIRE

SECTION 7

MAINTENANCE

Regular maintenance will reduce the possibility of hazard to the operator and prolong the life of the fume hood.

Warning!

Before attempting any inspection or replacement of electrical components in the unit, always disconnect the fume hood from the main power supply.

CLEANING AND INSPECTION

You should carry out the following procedures at six monthly intervals:

A Clean the spill tray interior surface of the hood with dilute detergent solution.

B Inspect the hood frame and panels for mechanical damage.

C Inspect the hinged door for corrosion and correct adjustment of friction hinges (where fitted).

D Remove the pre-filter and main filter, and inspect the fan assembly for correct operation.

E Airflow checks.

F Filter saturation checks.

G If the model is fitted with HEPA filters then testing requires the use of D.O.P. or similar equipment.

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SECTION 8

FILTER DESCRIPTION / PART NUMBER LIST

The following filters are available from the Labcaire custom or bespoke range of both pre-filters (filtrete) and main carbon filters, standard or impregnated, single or multistage grades.

Application Filter Code

Type:	Part No: <>2.2Kg	Part No: <>9Kg	Part No: <>14Kg
AC	LA-104	LA-1004	LA-504
ALAC	LA-106	LA-1006	LA-506
FORM	LA-107	LA-1007	LA-507
AMN	LA-108	LA-1008	LA-508
SUL	LA-109	LA-1009	LA-509
AC-R	LA-110	LA-1010	LA-510
AC-Hg	LA-111	LA-1011	LA-511
ACI	LA-114	LA-1014	LA-514
CYND	LA-115	LA-1015	LA-515
ETHE	LA-122	LA-1022	LA-522
HEPA	LA-120	LA-1020	LA-520

HEPA Filters Bespoke

HEPA	LA-525	650 x 300 x 72mm
HEPA	LA-5211	500 x 250 x 72mm

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Multiple Application Filters

Type:	Part No: <>2.2Kg	Part No: <>9Kg	Part No: <>14Kg
MCH ½ Height	N/A	LA-1017	LA-517
HEPA ½ Height	N/A	LA-1021A	LA-521A
Carbon (Specify Carbon Code)	N/A	LA-1021B	LA-521B

School Type Ed. School`s use only:

N/A	LA-1016	LA-516

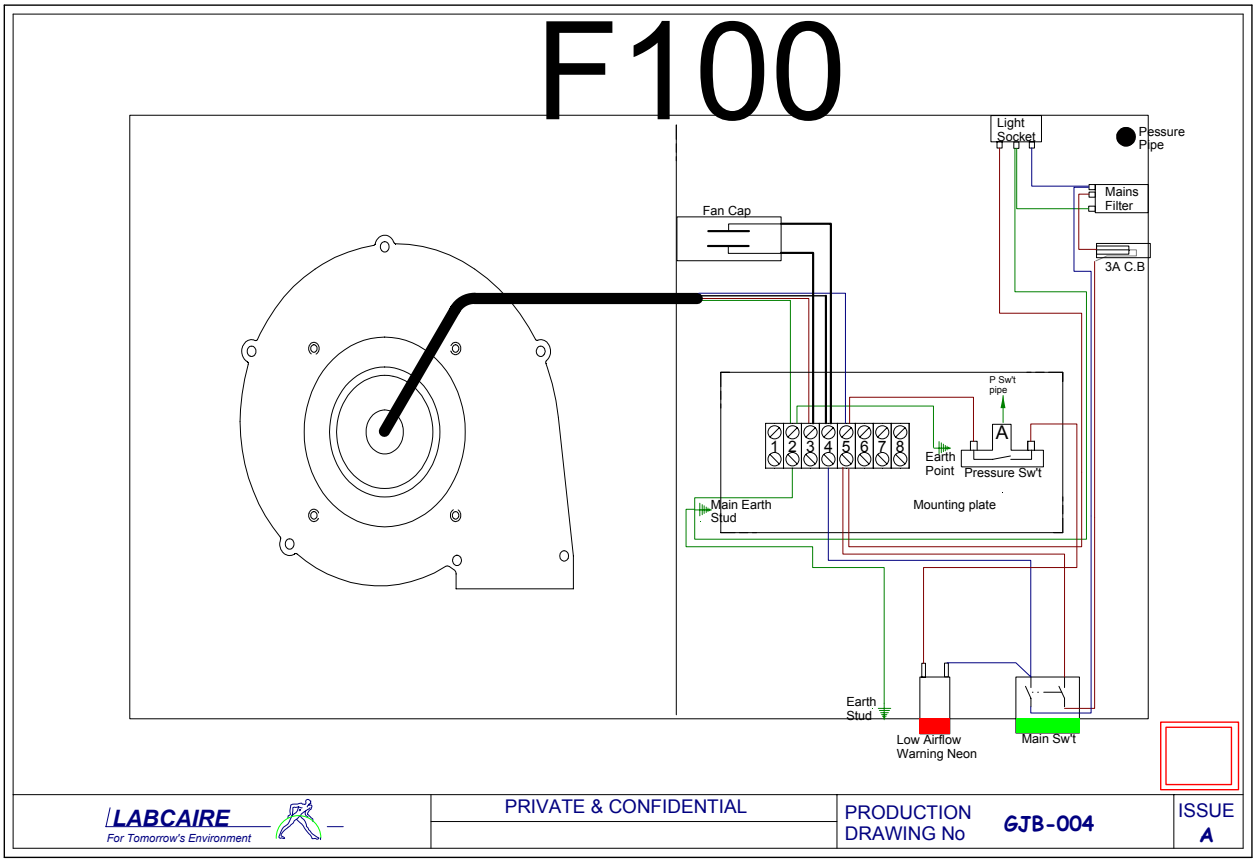
Particulate Pre-filters

LA-113	Pre-filters,	filtrete,	500mm x 250mm,	Pack of 10
LA-1013	Pre-filters,	filtrete,	600mm x 340mm,	Pack of 10
LA-513	Pre-filters,	filtrete,	600mm x 450mm,	Pack of 10
LA-113G	Pre-filters,	gauze,	500mm x 250mm,	Pack of 10
LA-1013G	Pre-filters,	gauze,	600mm x 340mm,	Pack of 10
LA-513G	Pre-filters,	gauze,	600mm x 450mm,	Pack of 10

MCM = MULTICHEMICAL CUSTOMISED
Specifications subject to change in the interest of product improvement.

SECTION 9

ELECTRICAL WIRING DIAGRAM



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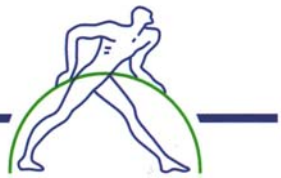

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